

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended). A circuit for testing a data memory, comprising:

a processing unit connected to the data memory, said processing unit configured for:

applying a first function to a predetermined test pattern for generating therefrom data items to be written to the data memory;

reading the data items from the data memory and applying a second function to the data items read from the data memory for generating therefrom test data items, the second function being a reciprocal function of the first function and a number of the data items being greater than a number of the test data items;

a test device connected to and outputting to said processing unit function data items defining the first function and the second function for said processing unit; and

a comparison device:

being connected to said processing unit ~~device~~ and to
said data memory;

receiving test data from the data memory; and

determining if the data memory is faulty based upon a
comparison of the test data items produced by said
processing unit ~~device~~ with each other and with the
predetermined test pattern upon which the first function
has not been applied ~~and the stored data items read from~~
~~the data memory.~~

Claim 2 (original). The circuit according to claim 1, wherein
a number of the data items read from the data memory is
greater than a number of the test data items generated
therefrom.

Claim 3 (original). The circuit according to claim 1, wherein
a number of the data items generated from the test pattern for
writing to the data memory is greater than a number of the
test data items forming the test pattern.

Claim 4 (previously presented). The circuit according to
claim 1, wherein said comparison device outputs a fault signal

as soon as a difference exists between the test data items produced by said processing device and the stored data items read from the data memory.

Claim 5 (original). The circuit according to claim 1, which comprises a buffer store connected between said processing unit and the data memory, for intermediately storing the data items produced from the test pattern data item and writing to the data memory.

Claim 6 (original). The circuit according to claim 1, which comprises a buffer store connected between said processing unit and the data memory, for intermediately storing the data items read from the data memory and forwarding the data items for processing in said processing unit.

Claim 7 (original). The circuit according to claim 1, which comprises a first buffer store connected between said processing unit and the data memory, for intermediately storing the data items produced from the test pattern data item and writing to the data memory, and a second buffer store connected between said processing unit and the data memory, for intermediately storing the data items read from the data memory and forwarding the data items for processing in said processing unit.

Claim 8 (original). The circuit according to claim 1 commonly integrated in a memory module together with the data memory.

Claim 9 (currently amended). A method of testing a data memory, which comprises the following steps:

receiving a predetermined test pattern data item;

processing the test pattern data item with a first function to produce data items for the data memory with a greater data width than the test pattern data item;

storing the data items in the data memory;

reading the stored data items from the data memory;

processing the stored data items with a second function being a reciprocal function of the first function, to produce test data items, and thereby defining the first function and the second function by function data items predetermined by a test device; and

detecting a fault in the data memory by comparing ~~a plurality of~~ the test data items with one another and with the predetermined test pattern data item upon which the first function was not applied.

Claim 10 (previously presented). The method according to claim 9, which comprises checking a functionality of the data memory by comparing the test data items and the stored data items read from the data memory.

Claim 11 (original). The method according to claim 9, which comprises using the predetermined test pattern data item as a stored data item for the data memory.

Claim 12 (original). The method according to claim 9, which comprises storing the data items at one address in the data memory.

Claim 13 (original). The method according to claim 9, which comprises reading the stored data items from one address in the data memory.